SITE ASSESSMENT REPORT
FOR
LAKE SALVAGE COMPANY
Chicago, Cook County, Illinois

U.S. EPA ID: ILD076875285
SSID: ZJ

TDD: T05-9308-025
PAN: EIL0673SAA

ecology and environment, inc.
International Specialists in the Environment

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September 12, 1994

Prepared by: _____ Date: 9/12/94

Reviewed by: _____ Date: 9/12/94

Approved by: _____ Date: 9/12/94

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

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1.0 INTRODUCTION

The Ecology & Environment, Inc. (E&E) Technical Assistance Team (TAT) was tasked by the United States Environmental Protection Agency (U.S. EPA) under Technical Directive Document (TDD) number T05-9308-025 to conduct a site assessment (SA) at the Lake Salvage Company (LSC) site, Chicago, Cook County, Illinois. The U.S. EPA On-Scene Coordinator (OSC) and the TAT performed a site reconnaissance, air monitoring, photodocumentation, and sampling at LSC. The SA was performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and Paragraph (b)(2) of 40 CFR Section 300.415 to evaluate on-site conditions and possible threats to human health and the environment.

2.0 SITE DESCRIPTION

The one-half-acre LSC site is an inactive incinerator and metal recycling facility located at 2527 W. Lake Street, two blocks west of Western Avenue, in Chicago, Illinois (see Figure 1). Coordinates of the site are 41°53'00" north latitude by 87°41'20" west longitude. Neighboring properties and much of the area are light industrial and commercial. There are also residential buildings within one city block, and public housing and schools within one half mile of the site. Bordering the site are Lake Street with its overhead El tracks on the north, a vacant lot on the west, an unpaved alley on the south, and a narrow vacant lot on the east (see Figure 2).

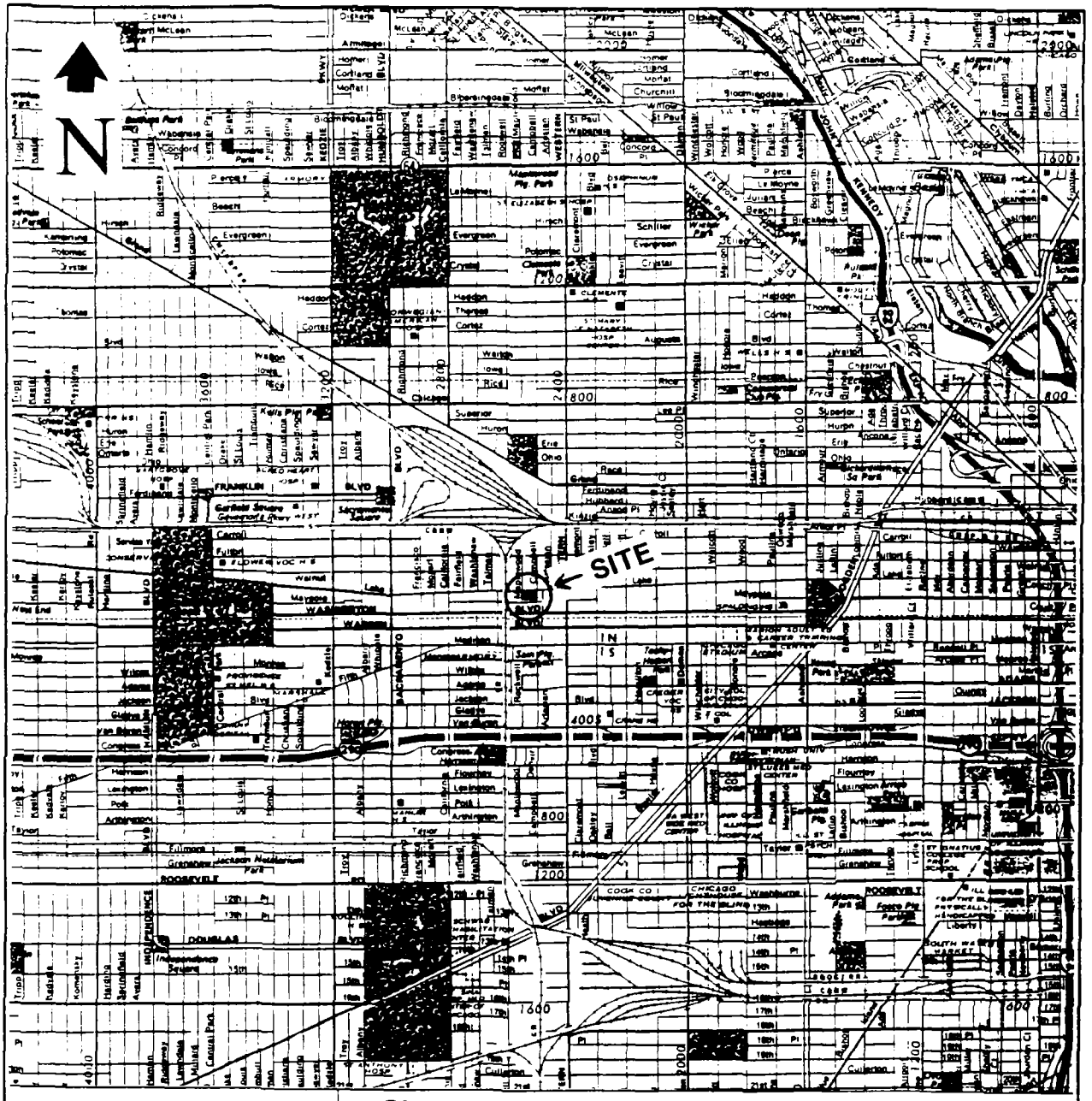
Site features consist of a paved yard covering approximately the eastern 2/3 of the site; a one-story concrete block building in poor condition; two incinerators; and another paved yard in the northwestern corner of the property. A wooden roof that apparently covered part of this yard has collapsed. A trench of unknown purpose approximately one foot wide and one to two feet deep extends about half way across the eastern yard from south to north.

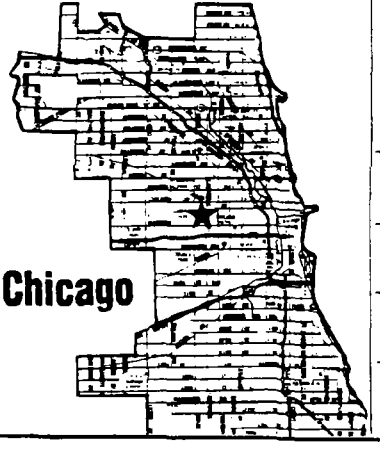
Access to the site is through a sliding gate in the sheet metal fence on Lake Street, just inside of which is a loading ramp. South of the ramp, in the southwest corner of the east yard, are two incinerators. Part of the site boundary is formed by the south side of the eastern incinerator, which is completely closed and inaccessible. The western incinerator, which is wide open and easily accessible, is located in an unroofed room-like enclosure. Both incinerators have tall metal stacks held up by rusty angle iron struts.

The interior of the site building is divided into several rooms. One or more of these rooms probably served as offices, but a large room in the southwestern corner of the building houses a machine, sunk in the floor, whose purpose is unknown.

3.0 SITE BACKGROUND

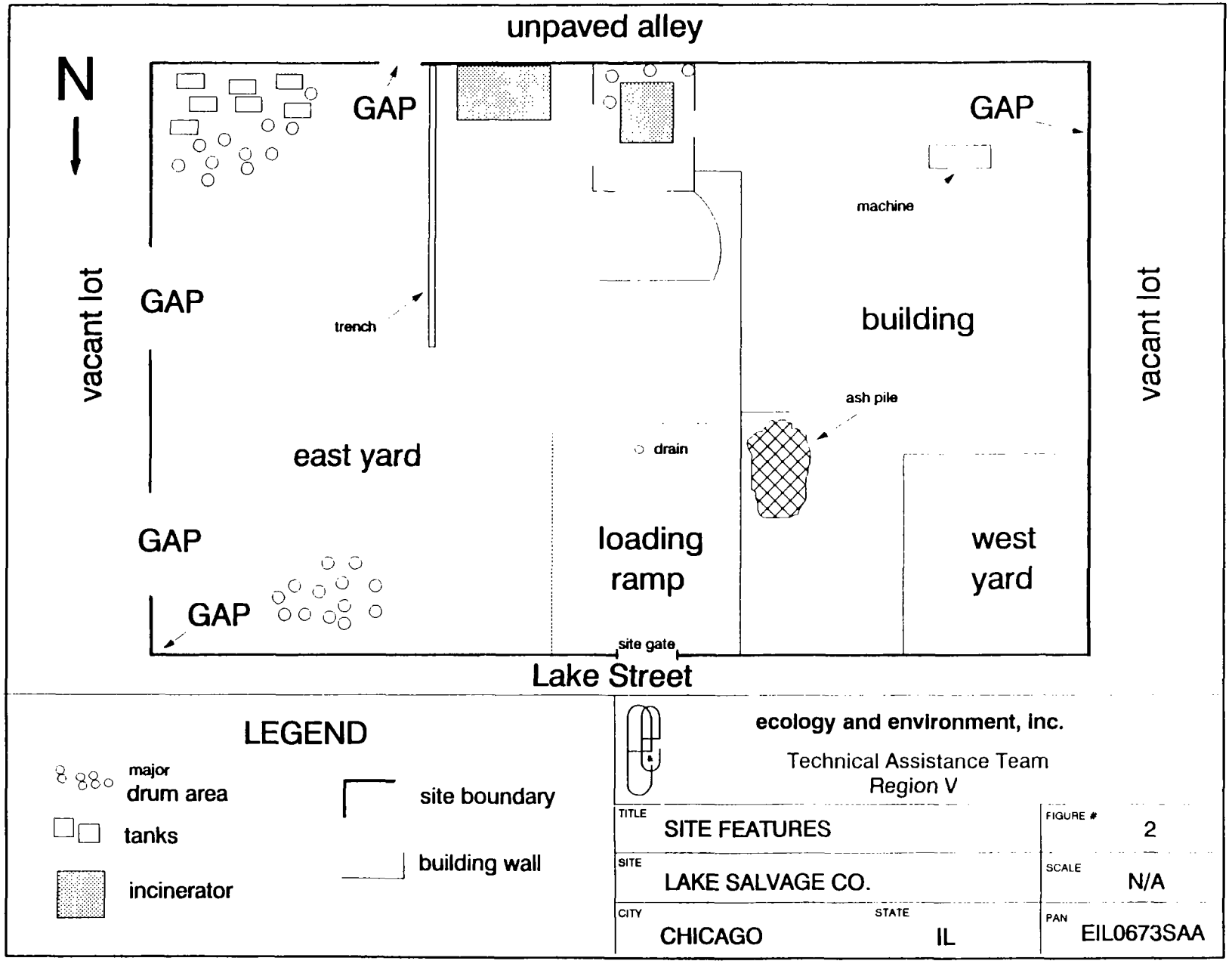
Prior to about 1950, a laundromat occupied the LSC site. From approximately 1950 to 1986, the Lake Salvage Company ran an operation at the site that





ecology and environment, inc.
Technical Assistance Team
Region V
111 W. Jackson Blvd., Chicago, Illinois 60604

TITLE	SITE LOCATION		FIGURE # 1
SITE	LAKE SALVAGE		SCALE 1 in. = 0.7 mi.
CITY	CHICAGO	STATE IL	PAN EIL0673SAA
SOURCE	RAND MCNALLY		DATE
			REVISED


unpaved alley
N
GAP
GAP
machine
vacant lot
GAP
trench
building
vacant lot
ash pile
drain
east yard
GAP
loading
ramp
west
yard
GAP
site gate
Lake Street
LEGEND
major
drum area
tanks
incinerator
site boundary
building wall
ecology and environment, inc.
Technical Assistance Team
Region V
TITLE
SITE FEATURES
FIGURE #
2
SITE
LAKE SALVAGE CO.
SCALE
N/A
CITY
CHICAGO
STATE
IL
PAN
EIL0673SAA

included purchasing, separating, and reselling various types of scrap metal. In 1974, a model RCF8001 incinerator was constructed on-site to burn the insulation from copper cable and wire. Fueled by natural gas, the incinerator used a secondary system with water spray to cool emissions and remove fly ash. After removal from the primary and secondary chambers, the ash was disposed of as general refuse at a municipal landfill.

On August 11, 1976, after completion of repairs to the incinerator's emission control system, the Illinois Environmental Protection Agency (IEPA) issued Lake Salvage Company an operating permit for the RCF8001, with an expiration date of July 28, 1981. The permit was renewed on March 16, 1981 and again on April 23, 1986. A second incinerator was installed at the LSC site, but type and dates are not known. In September 1986, when the facility closed due to lack of business, the incinerators were partially dismantled and the site fenced.

On April 15, 1987, IEPA collected ash and soil samples from the LSC site. Analysis of these samples indicated the presence of dioxins and furans in toxic equivalent (TE) concentrations up to 1.75 ug/kg. In July 1987, IEPA officially withdrew LSC's operating permit. On August 9, 1988, IEPA conducted a preliminary assessment of the LSC site.

On July 11, 1990, the U.S. EPA Field Investigation Team (FIT) conducted a Screening Site Investigation (SSI) of the facility, during which several large gaps were noted in the site fence. Analysis of soil and ash samples collected by FIT, both on-site and in the alley bordering the site on the south, indicated TE concentrations of dioxin exceeding 60 ug/kg, as well as lead up to 7,550 mg/kg. FIT noted the presence of approximately 90 55-gallon drums, some of which apparently had sealed lids. Site owners of record at the time of the FIT investigation were Alex Simkin, Edward Simkin, and Irwin Simkin.

4.0 SITE ASSESSMENT

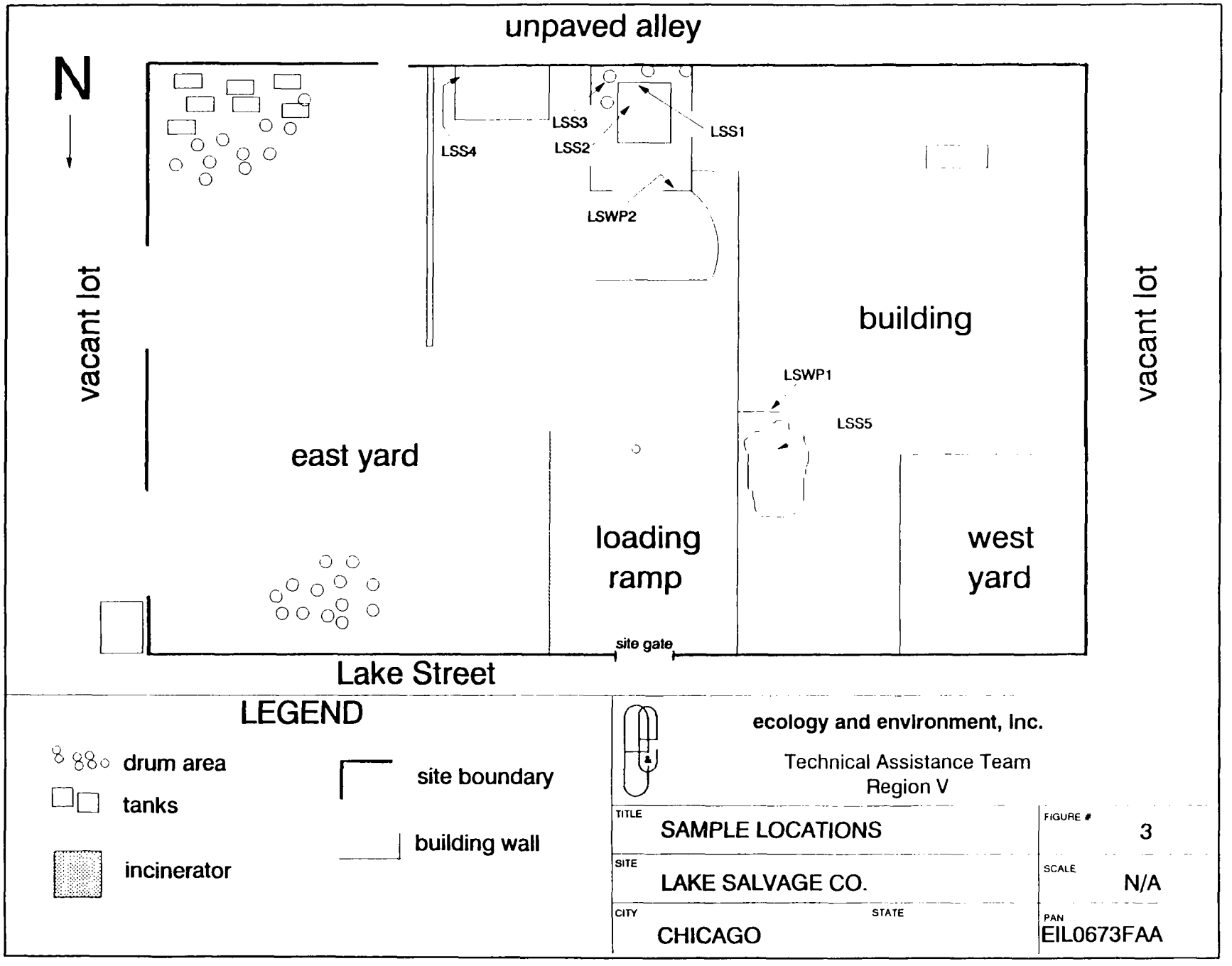
On March 24, 1994, OSC Fred Bartman and TATMs Larry Lueck and Tim Calloway conducted a walk-through at the LSC site (see photo logs, Appendix A). Gaps in the fence and a hole in the west wall of the site building were observed to allow unrestricted access. The eastern incinerator was rusted tightly shut but the western incinerator was wide open with a car seat on the floor, indicating that vagrants could have slept there. Site walls were covered with graffiti and large piles of empty liquor bottles were found in the on-site building. Rubbish and old lumber were scattered over the entire site. Ash and dust were present on the ground, in drums, in the western incinerator, and in the building. Much of this material contained various kinds of burned scrap, including capacitors and batteries of various kinds. Although none of the drums found on-site contained liquids other than rainwater, many contained ash and all were open. Eight rectangular tanks about five feet high were noted in the southeast corner of the site. The loading ramp just inside the site gate was strewn with approximately 200 old tires. TAT screened the entire site, including the open incinerator, three of the tanks that were safely accessible, and numerous drums, with an HNu photoionization detector for organic vapors. There were no readings above background.

On March 31, 1994, TATMs Larry Lueck and Mike Mangini returned to the site to collect five solid samples and two wipe samples at locations designated by the OSC during the walk-through. Sampling locations are shown in Figure 3. Other details of sample collection are given in Table 1 in the next section of this report. Each solid sample was collected and placed directly into the sample bottle with a stainless steel trowel or spoon that had been decontaminated with Alconox and de-ionized water. Wipe samples were collected with sterile gauze pads wetted with hexanol.

The samples were packaged according to DOT protocol and shipped the same day to laboratories as follows:

- LSS1, LSS2, and LSS3 to Twin City Testing, St. Paul, MN for high resolution dioxin analysis, QA level II, 7 day turn around for verbal results, 21 day turn around for hard copy;

- LSS4, LSS5, LSWP1, and LSWP2 to Coast to Coast Analytical, Indianapolis, IN for high resolution dioxin analysis, QA level II, 14 day turn around for verbal results, 21 day turn around for hard copy; this laboratory also later performed PCB analysis on samples LSS4 and LSS5.


unpaved alley
N
LSS4
LSS3
LSS2
LSS1
LSWP2
vacant lot
building
vacant lot
LSWP1
LSS5
east yard
loading ramp
west yard
site gate
Lake Street
LEGEND
drum area
tanks
incinerator
site boundary
building wall
ecology and environment, inc.
Technical Assistance Team
Region V
TITLE
SAMPLE LOCATIONS
FIGURE #
3
SITE
LAKE SALVAGE CO.
SCALE
N/A
CITY
CHICAGO
STATE
PAN
EIL0673FAA

5.0 ANALYTICAL RESULTS

Results of analysis of the samples collected March 31, 1994 are presented in Table 1. The TE (toxic equivalent) dioxin action levels are: 1 ug/kg for residential areas; 20 ug/kg for industrial sites. TE dioxin concentrations in samples LSS1, LSS2, and LSS3 were 1.053 ug/kg, 26.084 ug/kg, and 1.897 ug/kg, respectively. In view of the close proximity of apartment buildings and public housing projects, and the unsecured state of the site, the action level for residential areas should apply. These three samples are all above the residential action level for dioxin.

The other two solid samples were reported to be "outside quantifiable limits due to elevated levels of dioxin". U.S. EPA requested analyses of these two samples for PCBs and on April 13, 1994 TAT relayed this request to the laboratory. Preliminary results of these analyses, received April 27, 1994, indicated no PCBs above detection in the sample of brick dust from the eastern incinerator (LSS4), but 43 mg/kg (ppm) Arochlor 1242 in the sample from the ash/dust pile in the site building (LSS5).

Wipe samples LSWP1 and LSWP2 indicated the presence detectable levels of TE dioxin on both interior and exterior site walls.

TABLE 1
ANALYTICAL RESULTS - TAT-COLLECTED SAMPLES
LAKE SALVAGE COMPANY SITE
March 31, 1994

Sample Number	Collection Time	Sample Type	Matrix	Collection Location	TE dioxin Concentration
LSS1	1005	solid	crusty material	inside wall, west incinerator	1.053 ug/kg
LSS2	1010	solid	ash/ dust	floor, west incinerator	26.084 ug/kg
LSS3	1020	solid	ash	representative ash drum	1.897 ug/kg
LSS4	1025	solid	brick dust	below stack, east incinerator	*
LSS5	1035	solid	ash/ dust	ash/dust pile inside site building	*
LSWP1	1045	wipe	grime	interior building wall, by ash pile	19.567 pg/cm^2
LSWP2	1050	wipe	grime	wall near incinerators	4.792 pg/cm^2

* Sample result was reported as "outside quantifiable limits due to elevated levels of dioxin"

6.0 DISCUSSION OF POTENTIAL THREATS

Conditions observed during the U.S. EPA investigation of the LSC site that constitute a threat and may be used to determine the appropriateness of a removal action as outlined in section 300.415(b) of the NCP included:

* **Actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances, pollutants, or contaminants.**

Samples of ash, dust, and incinerator lining materials from the site, analyzed for dioxins and furans, have revealed TE dioxin concentrations of 1.1 ug/kg to 26.1 ug/kg. The action level for dioxin is 1 ug/kg for residential neighborhoods and 20 ug/kg for industrial sites. One sample of ash and dust from inside the site building also was found to contain 43 mg/kg (43 ppm) of the PCB Aroclor 1242. At the time of the site assessment, there were gaping holes in the LSC site fence and building wall, and abundant evidence of trespassing, such as graffiti and piles of empty liquor bottles. Large numbers of people live in apartment buildings and public housing projects within easy walking distance to the site. Observations documented during the SA indicate that people may come in frequent contact with on-site materials containing dioxin and PCBs.

Effects of dioxin on several species of laboratory animals include degenerative changes in liver and thymus, porphyria, altered serum enzyme concentrations, and loss in body weight. In animals, dioxin has also been shown to be a potent fetotoxic agent and a carcinogen, causing many different tumor types that affect the liver and thyroid. Two health effects have been repeatedly observed in humans following dioxin exposure: a skin disorder known as chloracne, and a general "not feeling well" syndrome that includes sleeplessness, headache, nausea, and irritability.

Short-term exposure to PCBs can irritate exposed tissue. Long-term exposure to PCBs can cause adverse skin conditions as well as liver and digestive system damage. High-level PCB exposure has caused cancer in laboratory animals.

* **Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.**

Of the approximately 90 55-gallon drums found on-site, at least half contain mostly dioxin-contaminated ash from the incinerators, and many others contain some ash with other waste. None of the drums have lids; some have been dumped over, partially emptying their contents onto the ground; many are in deteriorated condition; and there is evidence that trash has been burned in some. There is a potential for trespassers to come in contact with these bulk containers, since the site is easily accessible by way of gaps in the fence and building wall. Contents of the drums may gradually be released as the drums deteriorate further.

* **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.**

Analysis of soil samples collected on-site by FIT in June 1990 yielded TE dioxin concentrations in excess of 60 ug/kg. There is a potential for children to be exposed to this soil contamination while at play, as may animals foraging on-site (a dog and several rabbits were observed during site investigations). Soils and ash on the ground at the site are exposed to precipitation and may readily migrate off-site with runoff. Dry windy weather would also be expected to loft dioxin-contaminated soil particles from the open yard and spread them around the neighborhood.

* **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.**

Dioxin-contaminated ash and dust are present on the ground in the eastern yard of the LSC site, where they are susceptible to being washed away by runoff and blown around during dry windy weather. Drums of ash standing outside have deteriorated and will deteriorate further due to weathering, some to the point where their contents have been or will be released onto the ground. Since the two on-site incinerators, including their 50+ foot high stacks, are also crumbling gradually due to neglect and the action of weather, there is a potential for their contents of ash and brick dust to be released to the environment.

7.0 SUMMARY

Observations documented during the site assessment indicate that conditions at the LSC site may constitute an imminent and substantial endangerment to human health and the environment. This conclusion is based on observations by the OSC and the TAT, as evaluated against the criteria set forth in the NCP.

Elevated levels of dioxin/furans and PCBs have been detected in ash, soil, brick dust, and other materials present in the two on-site incinerators, on the ground, on the floor of the site building, and in numerous 55-gallon drums. Not only is there a potential for this material to migrate off-site via runoff or as wind-borne particles, but the site is readily accessible via several gaps in the site fence and building wall. There is abundant evidence, such as elaborate graffiti and piles of whiskey bottles, that trespassers spend significant amounts of time on-site, where they may be exposed to hazardous substances.

Immediate action is required to protect the public and the environment from potential exposure to elevated concentrations of dioxin and PCB contained in dust and ash on-site. Loose contaminated materials outside the site building should be gathered up and containerized in preparation for disposal. The site fence should be mended and added to wherever necessary, and the hole in the west wall of the building should be boarded, to prevent casual access to the site.

Time-critical action needed as a follow-up include disposal of contaminated ash and soil stockpiled during the original action; decontamination of site structures; and determination of the extent of off-site contamination attributable to the site.

Mitigation of the threats described above will require the removal and disposal of at least 20 cubic yards of ash and dust from the incinerators, drums, and ground of the eastern yard. Up to 60 cubic yards of non-hazardous waste will have to be removed from the yard first to allow access to the toxic material. Dust and ash removal from the building interior might amount to another 5-10 cubic yards or more. However, the building is quite decrepit and may have to be torn down before contaminated dust and ash can be safely removed.

APPENDIX A

SITE PHOTODOCUMENTATION

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 1 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 0930

DIRECTION OF PHOTOGRAPH: E

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Northeast gap in eastern site fence, and gap between north and east fences; truck box is in adjacent vacant lot; cars are in auto salvage yard beyond the vacant lot.

DATE: 3/24/94

TIME: 0930

DIRECTION OF PHOTOGRAPH: SE

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Gap in middle of eastern site fence.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 2 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

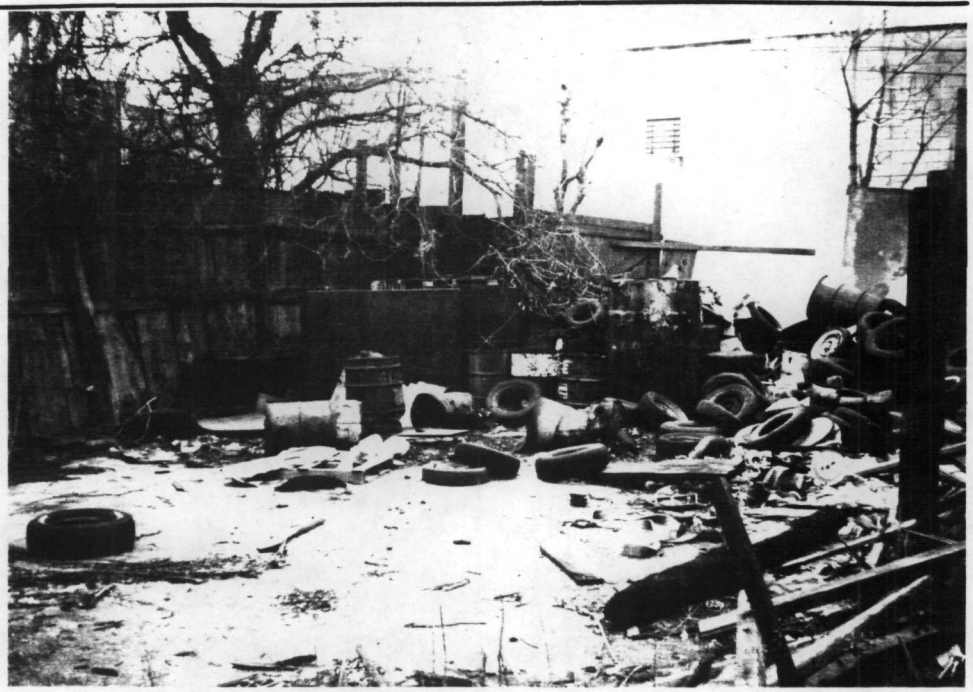
TIME: 0930

DIRECTION OF PHOTOGRAPH: SSE

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A



DESCRIPTION: Tires, Drums, and empty tanks in southeast corner of site.

DATE: 3/24/94

TIME: 0935

DIRECTION OF PHOTOGRAPH: SSW

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Gap in south site fence (between white panel on left and low block wall on right).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 3 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 0935

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L. Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Incinerators; western incinerator is in dark room in the middle; site building to right.

DATE: 3/24/94

TIME: 0935

DIRECTION OF PHOTOGRAPH: W

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L. Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: East yard, site building in background; loading ramp littered with old tires just below large graffiti; site entrance out of photo to right.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 4 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 0940

DIRECTION OF PHOTOGRAPH: NNW

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Group of drums near middle of north site fence; Lake Street "El" in background.

DATE: 3/24/94

TIME: 0940

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: View of neighborhood out gap in south site fence.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company PAGE 5 OF 15

U.S. EPA ID: ZJ TDD: T05-9308-025 PAN: EIL0673SAA

DATE: 3/24/94

TIME: 0940

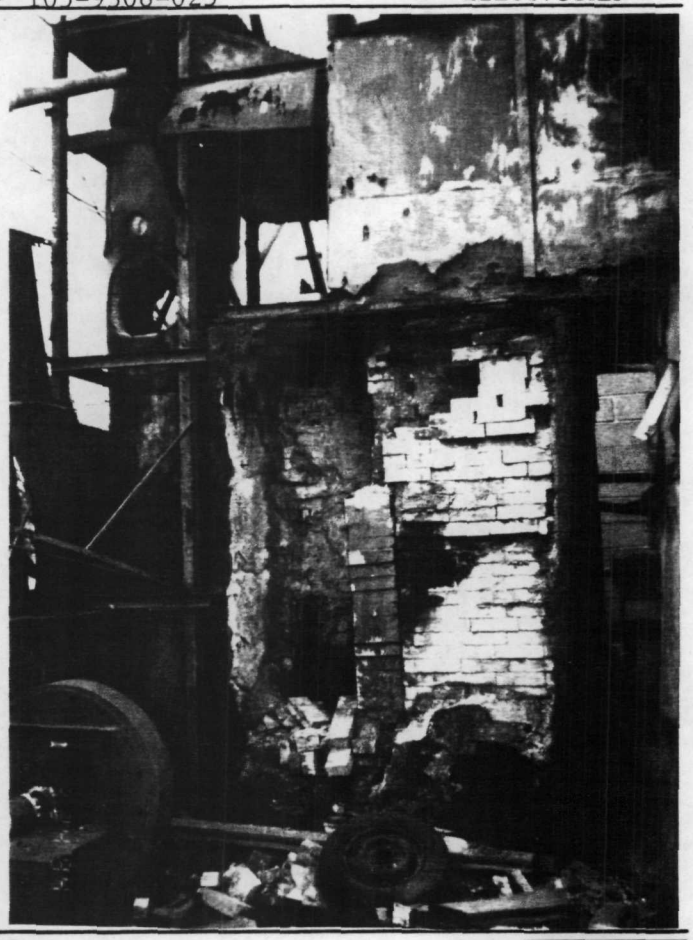
DIRECTION OF PHOTOGRAPH: W

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Crumbling brick-work in eastern incinerator



DATE: 3/24/94

TIME: 0945

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Western incinerator

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company PAGE 6 OF 15

U.S. EPA ID: ZJ TDD: T05-9308-025 PAN: EIL0673SAA

DATE: 3/24/94

TIME: 0945

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Drums of ash and other waste in western incinerator room.

DATE: 3/24/94

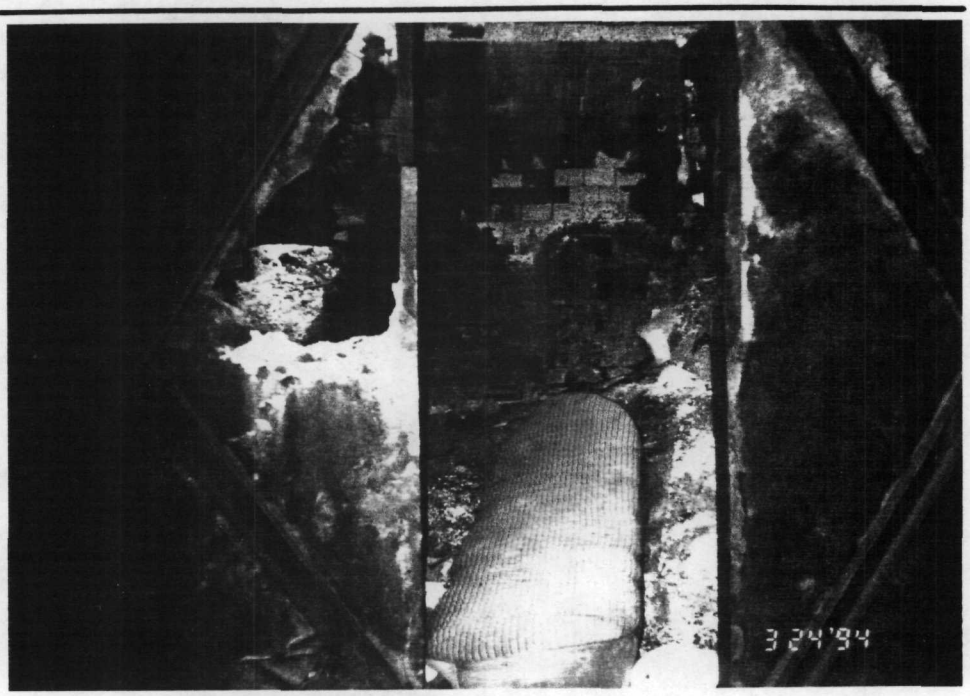
TIME: 0945

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A



DESCRIPTION: Car seat inside western incinerator.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 7 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 0950

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Interior of site building; scrap plastic parts that appear to be some sort of neck rests.

DATE: 3/24/94

TIME: 0950

DIRECTION OF PHOTOGRAPH: E

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Whiskey bottles, just inside building from western incinerator.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company PAGE 8 OF 15

U.S. EPA ID: ZJ TDD: T05-9308-025 PAN: EIL0673SAA

DATE: 3/24/94

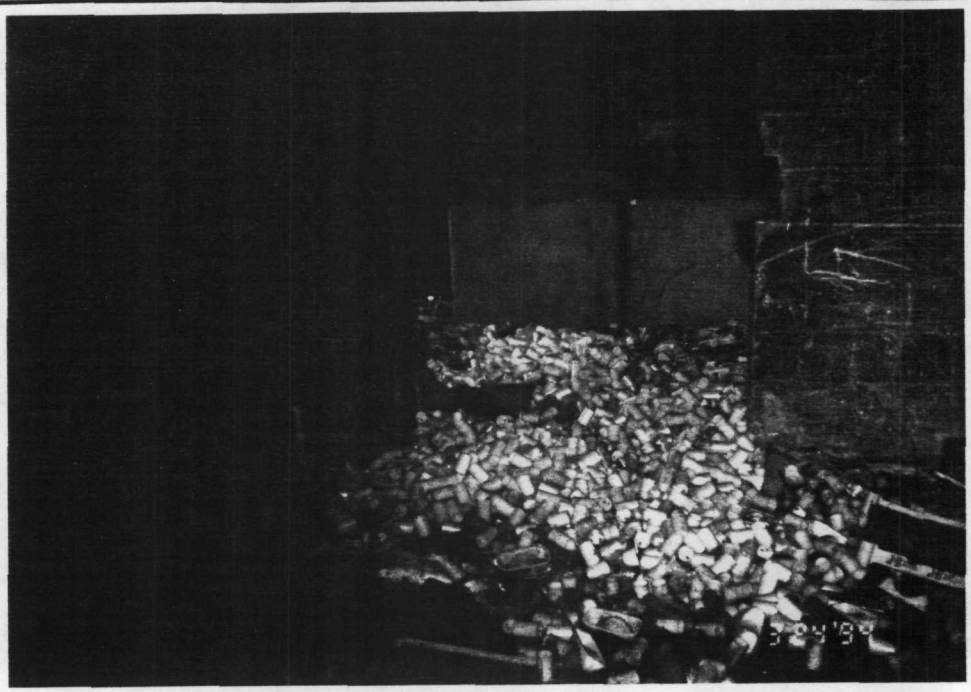
TIME: 0950

DIRECTION OF PHOTOGRAPH: E

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A



DESCRIPTION: Interior of building; scrap plastic cylinders of unknown purpose.

DATE: 3/24/94

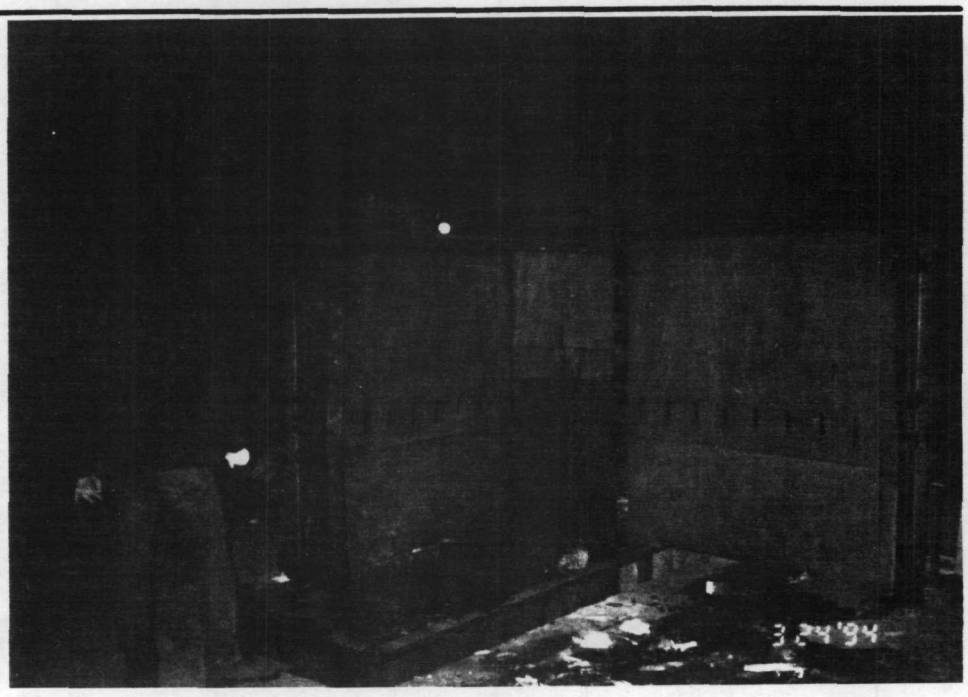
TIME: 0955

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A



DESCRIPTION: Machine of unknown purpose, southwest room in building interior; note well around base (approximately 3 feet down to water of unknown depth).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 9 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 0955

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Hole in west building wall.

DATE: 3/24/94

TIME: 0955

DIRECTION OF PHOTOGRAPH: E

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Unpaved alley along south side of site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 10 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 1000

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Ash/dust pile inside building adjacent to closed overhead door and loading ramp.

DATE: 3/24/94

TIME: 1000

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Gap between north and east site fences.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 11 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 1005

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: overcast, 40° F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: General view of eastern yard and incinerator area; western incinerator is inside middle cement block room.

DATE: 3/24/94

TIME: 1005

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: overcast, 40 F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Trench in eastern yard, partly filled with soil and trash.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 12 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/24/94

TIME: 1020

DIRECTION OF PHOTOGRAPH: W

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Damaged exterior block wall adjacent to overhead door; ash/dust pile is just inside.

DATE: 3/24/94

TIME: 1020

DIRECTION OF PHOTOGRAPH: ESE

WEATHER CONDITIONS: overcast, 40°F, windy

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): N/A

DESCRIPTION: Securing site gate on Lake Street (north) side.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 13 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308--025 **PAN:** EIL0673SAA

DATE: 3/31/94

TIME: 1104

DIRECTION OF PHOTOGRAPH: SSE

WEATHER CONDITIONS: sunny, 50°F, breeze

PHOTOGRAPHED BY: L. Lueck

SAMPLE ID (if applicable): LSS1, LSS2

DESCRIPTION: Interior of western incinerator; dark crusty material on back walls was sampled for LSS1; ash, dirt, and brick dust (light colored) on floor was sampled for LSS2.

DATE: 3/31/94

TIME: 1105

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: sunny, 50°F, breeze

PHOTOGRAPHED BY: L. Lueck

SAMPLE ID (if applicable): LSS3

DESCRIPTION: Center drum of ash was sampled for LSS3; one of approximately 16 drums standing around western incinerator.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company PAGE 14 OF 15

U.S. EPA ID: ZJ TDD: T05-9308-025 PAN: EIL0673SAA

DATE: 3/31/94

TIME: 1106

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: sunny, 50°F, breeze

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): LSS4

DESCRIPTION: Dirt, ash, and brick dust in crumbling part of eastern incinerator (see top photo on p. 5 of photolog); sampled for LSS4

DATE: 3/31/94

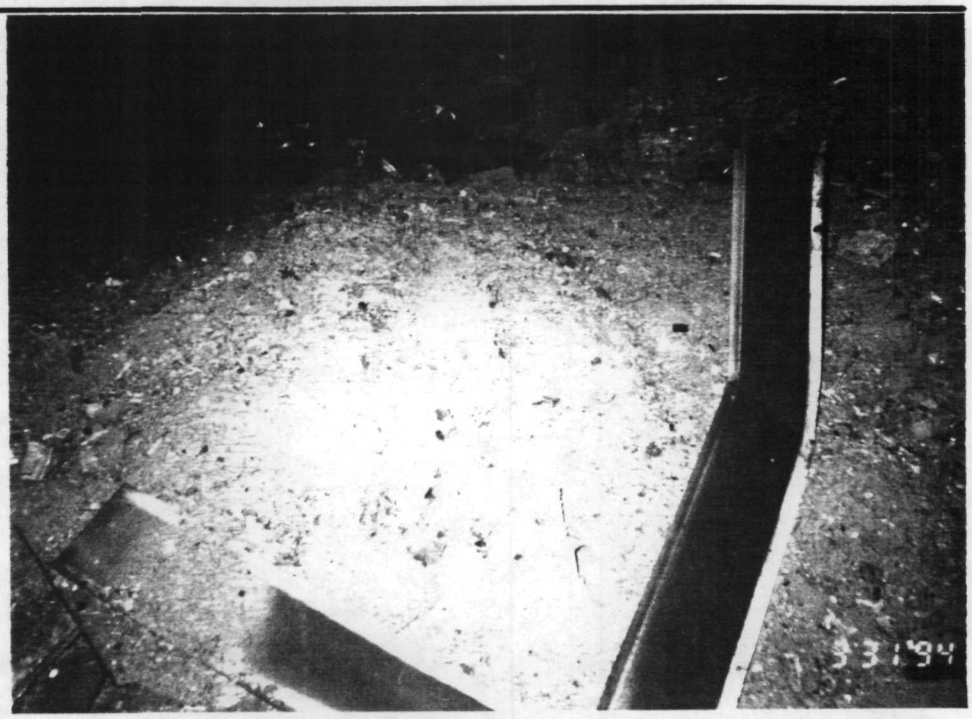
TIME: 1110

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: sunny, 50°F, breeze

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): LSS5



DESCRIPTION: Ash/dust pile inside building (see top photo on p. 10 of photolog); sampled for LSS5.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Salvage Company **PAGE** 15 **OF** 15

U.S. EPA ID: ZJ **TDD:** T05-9308-025 **PAN:** EIL0673SAA

DATE: 3/31/94

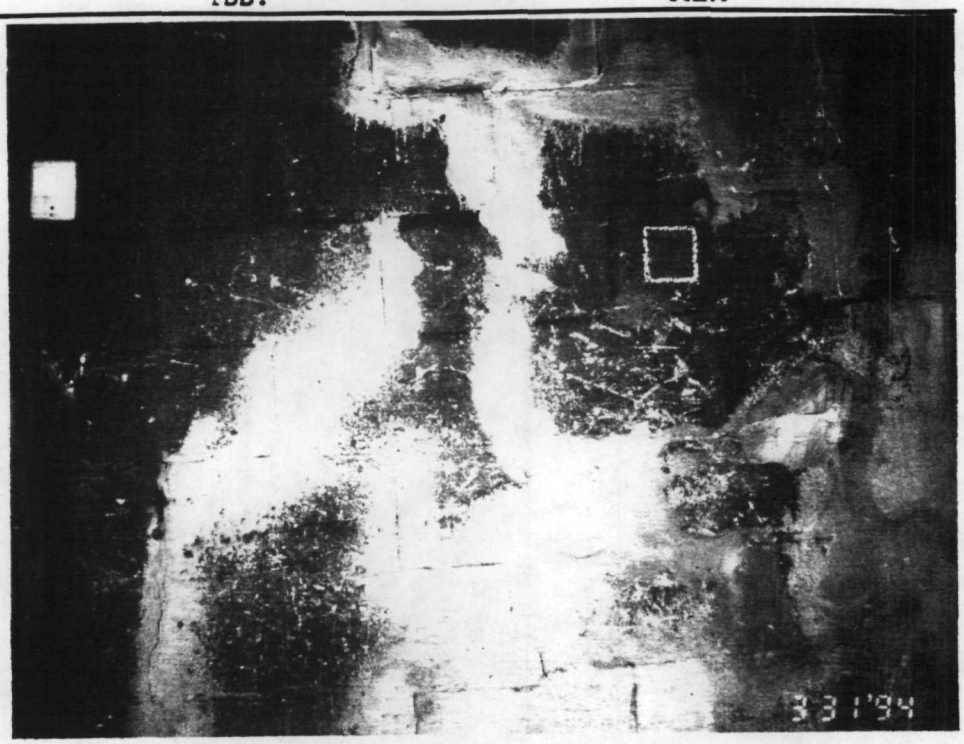
TIME: 1110

DIRECTION OF PHOTOGRAPH: NNE

WEATHER CONDITIONS: sunny, 50° F, breeze

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): LSWP1



DESCRIPTION: Wall inside building (ash/dust pile is just on the other side); wipe sample LSWP1 was collected from the 10 cm x 10 cm square marked in chalk.

DATE: 3/31/94

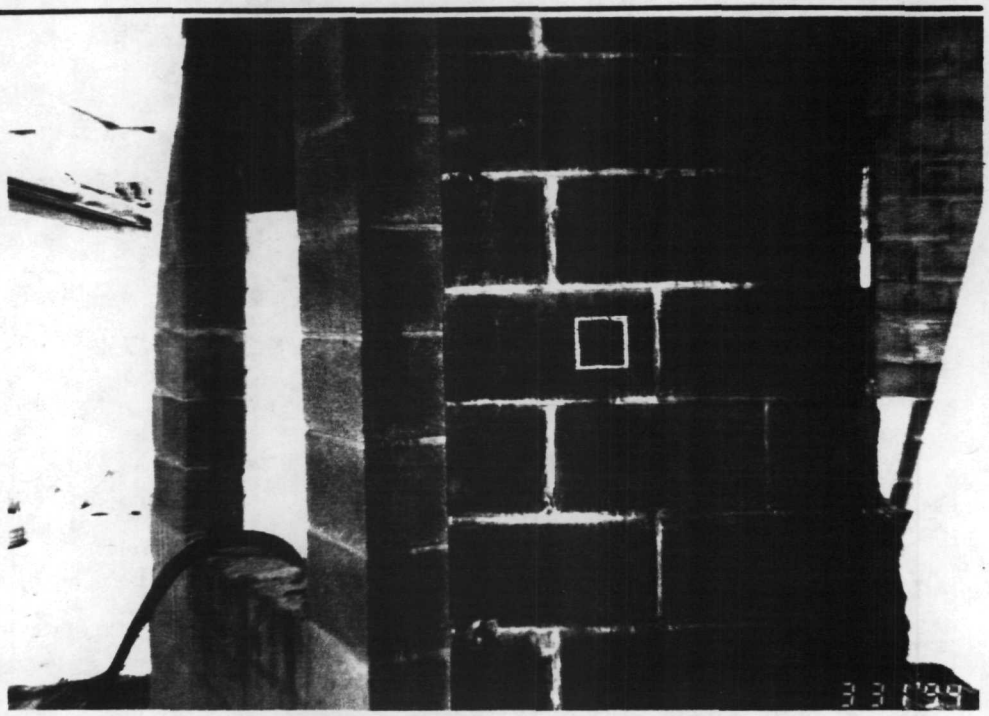
TIME: 1111

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: sunny, 50 F, breeze

PHOTOGRAPHED BY: L.Lueck

SAMPLE ID (if applicable): LSWP2



DESCRIPTION: Wall just opposite and north of western incinerator; wipe sample LSWP2 was collected from the 10 cm x 10 cm square marked in chalk.

APPENDIX B

REMOVAL COST PROJECTION

APPENDIX B

REMOVAL COST PROJECTION

EXTRAMURAL COSTS	
Cleanup Contractor Costs	$ 502,777.
Contingency (20%)	$ 100,555.
Subtotal	$ 603,332.
Total TAT (includes multiplier costs)	$ 32,544.
Extramural Subtotal	$ 635,876.
Extramural Contingency (20%)	$ 127,175.
TOTAL, EXTRAMURAL COSTS	$ 763,052.
INTRAMURAL COSTS	
U.S. EPA Direct Costs [$30. x (240 Regional hrs. + 24 HQ hrs.)]	$ 7,920.
U.S. EPA Indirect Costs [$53 x 240 Regional hrs.]	$ 12,720.
TOTAL, INTRAMURAL COSTS	$ 20,640.
TOTAL REMOVAL PROJECT CEILING	**$783,692.**

APPENDIX C

ANALYTICAL DATA PACKAGE

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: June 1, 1994

TO: Larry Lueck, Project Manager, E & E, Chicago, IL

FROM: David Hendren, TAT-Chemist, E & E, Chicago, IL

THRU: Mary Jane Ripp, Analytical Services Coordinator, E & E, Chicago, IL

SUBJ: **Data Quality Assurance Review for Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans(PCDD/PCDF)** for Lake Salvage site, Chicago, Cook County, IL

REF: Analytical TDD:T05-9403-812 Project TDD:T05-9308-025
Analytical PAN:EIL0673ABA Project PAN:EIL0673SAA

The data quality assurance review of two solid and two wipe samples collected from the site has been completed. Analysis for PCDD/PCDF was performed by Coast-To-Coast Analytical Services, Inc. of Indianapolis, Indiana, in accordance with EPA Method 1613. As a result of elevated levels of dioxin in the two solid samples the laboratory could not provide quantitative results. The laboratory reported that both solid samples exceeded the concentrations shown below.

Tetra dioxin isomer:	200 ppt
Penta-hepta isomers	1000 ppt
Octa isomer:	2000 ppt

The samples were numbered as follows in the field. The corresponding laboratory identification numbers are provided:

TAT Sample #	corresponds to - >	Laboratory Sample #
LSS4		IK0343-01
LSS5		IK0343-02
LSWP1		IK0343-03
LSWP2		IK0343-04

Data Qualifications:

I. **Holding Time:** Acceptable

The samples were collected on 3-31-94, extracted on 4-5-94 through 4-12-94, and analyzed on 4-11-94 and 4-12-94. The holding time criteria of 6 months days from collection to extraction was satisfied. All samples were analyzed within the 40 day limit following extraction.

II. **Instrument Performance:** Acceptable

Analysis of the calibration check solution showed that the % valley between tetrachlorodibenzodioxin (TCDD) isomers (1,2,3,4) and (2,3,7,8) was less than 25 %, as required. The % valley between the HxCDD isomers was within the 50% criteria.

III. **Calibration:**

A. Initial Calibration: Acceptable

The percent relative standard deviations (% RSD) for all analytes in the initial calibration was less than 15 %, as required. All specific ion ratio criteria were achieved and signal to noise criteria were satisfied.

B. Continuing Calibration: Acceptable

The continuing calibration standard was analyzed within the 8 hour limit and all percent differences of response factors were less than 30 %. All ion ratios for required quantitation ions were within allowable limits.

IV. **Method Blank:** Qualified

A method blank was analyzed for each matrix analyzed. The wipe method blank contained significant concentrations of target analytes. All detected PCDD/PCDF reported for the two wipe samples were qualified as estimated (flagged J) if the concentration in the samples did not exceed 5 times the concentration found in the method blank.

V. **Internal Standards:** Acceptable

The recovery of the specific internal standards was within acceptable quality control limits.

VI. **Matrix Spike/Matrix Spike Duplicate (MS/MSD):** Acceptable

The percent recoveries for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) were within the established quality control limits.

VII. **Overall Assessment of Data For Use:**

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-01 April, 1990). Based upon the information provided, the data are acceptable for use with the above stated qualifications.

Data qualifiers and Definitions:

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limit or quality control criteria were not met.

FORM 1
PCDD/PCDF ANALYSIS DATA SHEET
Sample and Blank Results

Lab Name: Coast-to-Coast Episode: N/A Client ID: LSWP1

Contract: IK0343 SAS No.: N/A Lab ID: IK0343-3

Matrix: WP Sample Wt/Vol: 100 (g/L) CM2

Sample Receipt Date: 01-APR-94 Initial Calib. Date:11-MAR-94

Extraction Date:01-APR-94 Shift: 1 Instrument ID: VG Autospec #2

Analysis Date: 11-APR-94 Time: 13:49 GC Column ID: DB-5

Extract Volume (uL): 20 Sample Data Filename: SAM0411051

Injection Volume (uL): 2 Blank Data Filename: SAM0411041

Dilution Factor: N/A Cal. Ver. Data Filename: SAM0411011

Concentration Units (pg/L or pg/g): pg/cm2 %Solids: N/A

ANALYTE	CONCENTRATION FOUND	DETECTION LIMIT	ION ABUND. RATIO
2378-TCDD	0.17		0.74
12378-PeCDD	0.76		1.53
123478-HxCDD	0.85		1.25
123678-HxCDD	1.70		1.28
123789-HxCDD	2.12		1.17
1234678-HpCDD	13.03		1.01
OCDD	34.93		0.89
2378-TCDF	23.88		0.77
12378-PeCDF	23.35		1.61
23478-PeCDF	10.77		1.63
123478-HxCDF	55.25		1.27
123678-HxCDF	16.28		1.07
123789-HxCDF	2.63		1.22
234678-HxCDF	11.96		1.33
1234678-HpCDF	61.23		1.03
1234789-HpCDF	16.16		1.02
OCDF	112.00		0.86
Total TCDD	3.76		
Total PeCDD	6.48		
Total HxCDD	17.55		
Total HpCDD	21.95		
Total TCDF	62.70		
Total PeCDF	110.50		
Total HxCDF	130.73		
Total HpCDF	106.91		

ND = Non-Detect
N/A = Not Applicable

FORM 1
PCDD/PCDF ANALYSIS DATA SHEET
Sample and Blank Results

Lab Name: Coast-to-Coast Episode: N/A Client ID: LSWP2

Contract: IK0343 SAS No.: N/A Lab ID: IK0343-4

Matrix: WP Sample Wt/Vol: 100 (g/L) CM2

Sample Receipt Date: 01-APR-94 Initial Calib. Date: 11-MAR-94

Extraction Date: 01-APR-94 Shift: 1 Instrument ID: VG Autospec #2

Analysis Date: 11-APR-94 Time: 14:49 GC Column ID: DB-5

Extract Volume (uL): 20 Sample Data Filename: SAM0411061

Injection Volume (uL): 2 Blank Data Filename: SAM0411041

Dilution Factor: N/A Cal. Ver. Data Filename: SAM0411011

Concentration Units (pg/L or pg/g): pg/cm2 %Solids: N/A

ANALYTE	CONCENTRATION FOUND	DETECTION LIMIT	ION ABUND. RATIO
2378-TCDD	ND	0.14	
12378-PeCDD	ND	0.87	
123478-HxCDD	0.15		1.40
123678-HxCDD	0.33		1.21
123789-HxCDD	0.36		1.06
1234678-HpCDD	2.13		1.08
OCDD	5.05		0.92
2378-TCDF	4.33		0.77
12378-PeCDF	6.36		1.53
23478-PeCDF	2.24		1.47
123478-HxCDF	20.24		1.27
123678-HxCDF	5.07		1.24
123789-HxCDF	1.12		1.37
234678-HxCDF	2.33		1.32
1234678-HpCDF	21.35		1.05
1234789-HpCDF	6.38		1.16
OCDF	46.96		0.99
Total TCDD	0.40		
Total PeCDD	0.54		
Total HxCDD	2.89		
Total HpCDD	3.80		
Total TCDF	8.21		
Total PeCDF	21.68		
Total HxCDF	40.90		
Total HpCDF	37.43		

ND = Non-Detect
N/A = Not Applicable

FORM 1
PCDD/PCDF ANALYSIS DATA SHEET
Sample and Blank Results

Lab Name: Coast-to-Coast Episode: N/A Client ID: N/A

Contract: IK0343 SAS No.: N/A Lab ID: MB-WIPE

Matrix: WP Sample Wt/Vol: 1 (g/L) WP

Sample Receipt Date: 01-APR-94 Initial Calib. Date: 11-MAR-94

Extraction Date: 01-APR-94 Shift: 1 Instrument ID: VG Autospec #2

Analysis Date: 11-APR-94 Time: 12:50 GC Column ID: DB-5

Extract Volume (uL): 20 Sample Data Filename: SAM0411041

Injection Volume (uL): 2 Blank Data Filename: SAM0411041

Dilution Factor: N/A Cal. Ver. Data Filename: SAM0411011

Concentration Units (pg/L or pg/g): pg/WP %Solids: N/A

ANALYTE	CONCENTRATION FOUND	DETECTION LIMIT	ION ABUND. RATIO
2378-TCDD	ND	64.97	
12378-PeCDD	ND	49.55	
123478-HxCDD	7.34		1.31
123678-HxCDD	5.31		1.41
123789-HxCDD	9.71		1.39
1234678-HpCDD	17.23		1.11
OCDD	19.87		0.87
2378-TCDF	42.45		0.79
[illegible]78-PeCDF	14.22		1.75
23478-PeCDF	16.44		1.37
123478-HxCDF	21.27		1.09
123678-HxCDF	9.66		1.43
123789-HxCDF	5.18		1.27
234678-HxCDF	7.60		1.10
1234678-HpCDF	ND	5	
1234789-HpCDF	ND	8.16	
OCDF	25.57		0.99
Total TCDD	111.18		
Total PeCDD	53.73		
Total HxCDD	62.37		
Total HpCDD	29.40		
Total TCDF	277.60		
Total PeCDF	125.23		
Total HxCDF	79.59		
Total HpCDF	0.78		

ND = Non-Detect
N/A = Not Applicable

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: June 20, 1994

TO: Larry Lueck, Project Manager, E & E, Chicago, IL

FROM: David Hendren, TAT-Chemist, E & E, Chicago, IL

THRU: Mary Jane Ripp, Analytical Services Coordinator, E & E, Chicago, IL

SUBJ: **Data Quality Assurance Review for Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans(PCDD/PCDF)** for Lake Salvage site, Chicago, Cook County, IL

REF: Analytical TDD:T05-9403-812 Project TDD:T05-9308-025
Analytical PAN:EIL0673ABA Project PAN:EIL0673SAA

The data quality assurance review of three solid samples collected from the site has been completed. Analysis for PCDD/PCDF was performed by Twin City Testing Corporation (Huntingdon) of St Paul, Minnesota, in accordance with EPA SW-846 Method 8290.

The samples were numbered as follows in the field. The corresponding laboratory identification numbers are provided:

TAT Sample #	corresponds to - >	Laboratory Sample #
LSS1		17686
LSS2		17687
LSS3		17688

Data Qualifications:

I. **Holding Time:** Acceptable

The samples were collected on 3-31-94, extracted on 4-1-94 through 4-5-94, and analyzed on 4-6-94. The holding time criteria of 6 months days from collection to extraction was satisfied. All

samples were analyzed within the 40 day limit following extraction.

II. **Instrument Performance:** Acceptable

Analysis of the calibration check solution showed that the % valley between tetrachlorodibenzodioxin (TCDD) isomers (1,2,3,4) and (2,3,7,8) was less than 25 %, as required. The % valley between the HxCDD isomers was within the 50% criteria.

III. **Calibration:**

A. Initial Calibration: Acceptable

The percent relative standard deviations (% RSD) for all analytes in the initial calibration was less than 15 %, as required. All specific ion ratio criteria were achieved and signal to noise criteria were satisfied.

B. Continuing Calibration: Acceptable

Analysis of the continuing calibration standard showed differences between the initial response factors of less than 30 %. All ion ratios for required quantitation ions were within allowable limits.

IV. **Method Blank:** Acceptable

A method blank was analyzed with samples. Traces of OCDF (5.9 ppt) and OCDD (15.0 ppt) were detected in the method blank. Levels of these analytes in the samples greatly exceeded these levels and qualification was uneccesary.

V. **Internal Standards:** Acceptable

The recovery of the specific internal standards was within acceptable quality control limits.

VI. **Matrix Spike/Matrix Spike Duplicate (MS/MSD):** Acceptable

The percent recoveries for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) were within the established quality control limits.

VII. **Overall Assessment of Data For Use:**

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-01 April, 1990). Based upon the information provided, the data are acceptable for use with the above stated qualifications.

****
TWIN CITY TESTING CORPORATION
*METHOD 8290 ANALYSIS RESULTS *
****
Client....ECOLOGY & ENVIRONMENT

Client's Sample ID.....LSS1 (1:5 DILUTION)
TCT Sample ID.....17686
Analysis Date.....4/6/94 21:23
Filename.....S40406M
Injected By.....MCH
Total Amount Extracted...0.0114 kg
% Moisture..... 1.4 %
ICAL Date.....12/10/93
CCAL Filename.....S40406I
Method Blank ID.....BLANK-17718
Extraction Date.....4/1/94

NATIVE ISOMERS	CONC. ng/kg		LOD ng/kg	INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF	760	*	-----	2378-TCDF-13C....	2.00	101
TOTAL TCDF	4000		-----	2378-TCDD-13C....	2.00	88
				12378-PeCDF-13C..	2.00	109
2378-TCDD	13		-----	23478-PeCDF-13C..	2.00	110
TOTAL TCDD	180		-----	12378-PeCDD-13C..	2.00	103
				123478-HxCDF-13C.	2.00	105
12378-PeCDF	880		-----	123678-HxCDF-13C.	2.00	95
23478-PeCDF	560		-----	234678-HxCDF-13C.	2.00	103
TOTAL PeCDF	5400		-----	123789-HxCDF-13C.	2.00	109
				123478-HxCDD-13C.	2.00	93
12378-PeCDD	58		-----	123678-HxCDD-13C.	2.00	92
TOTAL PeCDD	580		-----	1234678-HpCDF-13C	2.00	101
				1234789-HpCDF-13C	2.00	107
123478-HxCDF	2600		-----	1234678-HpCDD-13C	2.00	95
123678-HxCDF	1100		-----	OCDD-13C.....	4.00	103
234678-HxCDF	720		-----			
123789-HxCDF	510		-----	1234-TCDD-13C....	2.00	NA
TOTAL HxCDF	7200		-----	123789-HxCDD-13C.	2.00	NA
123478-HxCDD	76		-----	2378-TCDD-37Cl4..	0.20	76
123678-HxCDD	160		-----			
123789-HxCDD	110		-----			
TOTAL HxCDD	1400		-----	Total 2378-TCDD Equivalence: (Using ITE Factors)	1053	ng/kg
1234678-HpCDF	4300		-----			
1234789-HpCDF	1300		-----			
TOTAL HpCDF	8300		-----			
1234678-HpCDD	1500		-----			
TOTAL HpCDD	2600		-----			
OCDF	9200		-----			
OCDD	3100		-----			

* Value obtained from confirmation runfile S40406D.

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable

TCT Invoice Number....4411 94-3226

****
TWIN CITY TESTING CORPORATION
*METHOD 8290 ANALYSIS RESULTS *
****
Client....ECOLOGY & ENVIRONMENT

Client's Sample ID.....LSS2 (1:20 DILUTION)
TCT Sample ID.....17687
Analysis Date.....4/6/94 23:08
Filename.....S404060
Injected By.....MCH
Total Amount Extracted...0.0127 kg
% Moisture..... 10.1 %
ICAL Date.....12/10/93
CCAL Filename.....S40406I
Method Blank ID.....BLANK-17718
Extraction Date.....4/1/94

NATIVE ISOMERS	CONC. ng/kg		LOD ng/kg	INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF	14000	*	-----	2378-TCDF-13C....	2.00	129
TOTAL TCDF	74000		-----	2378-TCDD-13C....	2.00	108
				12378-PeCDF-13C..	2.00	137
2378-TCDD	300		-----	23478-PeCDF-13C..	2.00	143
TOTAL TCDD	4800		-----	12378-PeCDD-13C..	2.00	124
				123478-HxCDF-13C.	2.00	125
12378-PeCDF	31000		-----	123678-HxCDF-13C.	2.00	108
23478-PeCDF	13000		-----	234678-HxCDF-13C.	2.00	120
TOTAL PeCDF	120000		-----	123789-HxCDF-13C.	2.00	128
				123478-HxCDD-13C.	2.00	100
12378-PeCDD	1100		-----	123678-HxCDD-13C.	2.00	103
TOTAL PeCDD	11000		-----	1234678-HpCDF-13C	2.00	126
				1234789-HpCDF-13C	2.00	129
123478-HxCDF	73000		-----	1234678-HpCDD-13C	2.00	114
123678-HxCDF	23000		-----	OCDD-13C.....	4.00	115
234678-HxCDF	15000		-----			
123789-HxCDF	13000		-----	1234-TCDD-13C....	2.00	NA
TOTAL HxCDF	200000		-----	123789-HxCDD-13C.	2.00	NA
123478-HxCDD	2300		-----	2378-TCDD-37Cl4..	0.20	66
123678-HxCDD	3400		-----			
123789-HxCDD	2500		-----			
TOTAL HxCDD	29000		-----			
1234678-HpCDF	120000		-----			
1234789-HpCDF	39000		-----			
TOTAL HpCDF	200000		-----			
1234678-HpCDD	30000		-----			
TOTAL HpCDD	49000		-----			
OCDF	600000	**	-----			
OCDD	74000		-----			

Total 2378-TCDD Equivalence: 26084 ng/kg
(Using ITE Factors)

* Value obtained from confirmation runfile S40406E.
**Saturated signal.
All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable

TCT Invoice Number....4411 94-3226

****
TWIN CITY TESTING CORPORATION
*METHOD 8290 ANALYSIS RESULTS *
****
Client....ECOLOGY & ENVIRONMENT

Client's Sample ID.....LSS3 (1:5 DILUTION)
TCT Sample ID.....17688
Analysis Date.....4/6/94 22:13
Filename.....S40406N
Injected By.....MCH
Total Amount Extracted...0.0142 kg
% Moisture..... 19.9 %
ICAL Date.....12/10/93
CCAL Filename.....S40406I
Method Blank ID.....BLANK-17718
Extraction Date.....4/1/94

NATIVE ISOMERS	CONC. ng/kg		LOD ng/kg	INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF	1700	*	-----	2378-TCDF-13C....	2.00	117
TOTAL TCDF	9000		-----	2378-TCDD-13C....	2.00	102
				12378-PeCDF-13C..	2.00	108
2378-TCDD	16		-----	23478-PeCDF-13C..	2.00	110
TOTAL TCDD	500		-----	12378-PeCDD-13C..	2.00	106
				123478-HxCDF-13C.	2.00	106
12378-PeCDF	2000		-----	123678-HxCDF-13C.	2.00	95
23478-PeCDF	740		-----	234678-HxCDF-13C.	2.00	111
TOTAL PeCDF	8700		-----	123789-HxCDF-13C.	2.00	121
				123478-HxCDD-13C.	2.00	91
12378-PeCDD	73		-----	123678-HxCDD-13C.	2.00	94
TOTAL PeCDD	860		-----	1234678-HpCDF-13C	2.00	106
				1234789-HpCDF-13C	2.00	109
123478-HxCDF	5900		-----	1234678-HpCDD-13C	2.00	95
123678-HxCDF	1700		-----	OCDD-13C.....	4.00	96
234678-HxCDF	990		-----			
123789-HxCDF	860		-----	1234-TCDD-13C....	2.00	NA
TOTAL HxCDF	12000		-----	123789-HxCDD-13C.	2.00	NA
123478-HxCDD	95		-----	2378-TCDD-37Cl4..	0.20	105
123678-HxCDD	190		-----			
123789-HxCDD	120		-----			
TOTAL HxCDD	1900		-----			
1234678-HpCDF	5900		-----			
1234789-HpCDF	2300		-----			
TOTAL HpCDF	11000		-----			
1234678-HpCDD	5300		-----			
TOTAL HpCDD	11000		-----			
OCDF	22000		-----			
OCDD	61000		-----			

Total 2378-TCDD Equivalence: 1896 ng/kg
(Using ITE Factors/DB-5 Data)

* Value obtained from confirmation runfile S40406F.

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable

TCT Invoice Number....4411 94-3226

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: June 1, 1994

TO: Larry Lueck, Project Manager, E & E, Chicago, IL

FROM: David Hendren, TAT-Chemist, E & E, Chicago, IL DH

THRU: Mary Jane Ripp, Analytical Services Coordinator, E & E, Chicago, IL

SUBJ: **Data Quality Assurance Review for Polychlorinated Biphenyls (PCB)** for Lake Salvage site, Chicago, Cook County, IL

REF: Analytical TDD:T05-9403-812 Project TDD:T05-9308-025
Analytical PAN:EIL0673ABA Project PAN:EIL0673SAA

The data quality assurance review of two solid samples collected from the site has been completed. Analysis for PCBs was performed by Coast-To-Coast Analytical Services, Inc. of Indianapolis, Indiana, in accordance with SW-846 EPA Method 8080.

The samples were numbered as follows in the field. The corresponding laboratory identification numbers are provided:

TAT Sample #	corresponds to - >	Laboratory Sample #
LSS4		IK0343-01
LSS5		IK0343-02

Data Qualifications:

I. **Holding Time:** Acceptable

The samples were collected on 3-31-94, extracted on 4-14-94, and analyzed on 4-18-94. The holding time criteria of 14 days from collection to extraction was satisfied. All samples were analyzed within the 40 day limit following extraction.

II. **Instrument Performance:** Acceptable

The chromatographic peak resolution was acceptable for both standards and samples. The retention times shifts observed for the surrogates used were acceptable.

III. **Calibration:**

A. Initial Calibration: Acceptable

A 6-point calibration was performed for all Aroclors required for EPA 8080 analysis. A correlation coeeficient greater than .995 was obtained for all standards.

B. Continuing Calibration: Not applicable

A continuing calibration standard was not required because the initial calibration was performed immediately preceeding sample analysis.

IV. **Method Blank:** Acceptable

A method blank was analyzed for each matrix analyzed. No target analytes or contaminants were detected above the detection limit.

V. **Compound Identification:** Not Applicable

Analytical confirmation of the detected PCB in sample 343-02 was not performed.

VI. **Matrix Spike/Matrix Spike Duplicate (MS/MSD):** Not Applicable

VII. **Surrogate Recovery:** Not Applicable

As a result of dilution of the samples and interferences the percent recoveries of the surrogates could not be determined.

VIII. **Overall Assessment of Data For Use:**

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-01 April, 1990). Based upon the information provided, the data are acceptable for use.

METHOD 8080 POLYCHLORINATED BIPHENYLS

Case No: IK0343 Client: Ecology & Environment Analyst: MWH
Seq File: April15 Matrix: Soil Units: ug/Kg

Detection Limits ug/Kg	CCAS-I Sample I.D. / Client Sample I.D.	0343-SBlk / Soil Blk	0343-01 / LSS4	0343-02 / LSS5	0343-LCS / Spike
16.7	Arochlor 1016	< 16.7	< 167	< 1670	< 16.7
33.3	Arochlor 1221	< 33.3	< 333	< 3330	< 33.3
16.7	Arochlor 1232	< 16.7	< 167	< 1670	< 16.7
16.7	Arochlor 1242	< 16.7	< 167	43,000	< 16.7
16.7	Arochlor 1248	< 16.7	< 167	< 1670	< 16.7
16.7	Arochlor 1254	< 16.7	< 167	< 1670	65
16.7	Arochlor 1260	< 16.7	< 167	< 1670	< 16.7

Internal And Surrogate Standard Recovery Data

Limits						
50 - 160	SS	TCMX	89	78	D	89
50 - 160	IS	PCNB	101	M.I.	M.I.	91
50 - 160	SS	DBC	115	D	D	109
50 - 160	SS	DCB	84	D	D	70

M.I. Denotes matrix interference

* Denotes Recovery Outside of Quality Control Limits

D Denotes values diluted out

Date Received: 04/01/94 Date Extracted: 04/14/94
Date Analyzed: 04/15/94 - 04/18/94 Date Reported: 04/27/94

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	Activity Code:
EIL06735AA	T05-9308-025	

SAMPLERS: *(Print Name and Sign)* Larry Lueck [signature]

Analyte: High res. dioxin K-2 Widemant

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: High res. dioxin K-2 Widemant					TAG NUMBERS
LSS1	3/31/94	1005		X	crust, western incinerator	1	1					High resolution dioxin analysis.
LSS2	3/31/94	1010		X	ash/dirt, western incinerator	1	1					7 day turnaround. QA level II
LSS3	3/31/94	1020		X	drum ash	1	1					
												FAX results to Mary Jane Ripp
												Ecology & Environment, Inc.
												FAX (312) 663-1090
												hard copy 21 day
												to Mary Jane Ripp
												Ecology & Environment, Inc
												111 W. Jackson
												Chicago IL 60604
												(312) 663-9415
												Shipment is complete

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Ship To:
[signature]	3/31/94 1500		Twin City Testing 737 Pelham Blvd. St. Paul, MN 55114
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	ATTN: Todd Mitchell
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* — Date / Time	Airbill Number 1254[illegible]35
			Chain of Custody Seal Numbers 1433[illegible]

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

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ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	Activity Code:
EIL06735AA	705-9308-025	

SAMPLERS: (Print Name and Sign) Larry Lueck [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	Analyte: High resolution dioxin 16-oz wide mouth	High resolution dioxin 125 ml glass with gauze pad*					TAG NUMBERS
LSS4	3/31/94	1025		X	brick, eastern incinerator	1	1						High resolution dioxin analysis
LSS5	3/31/94	1035		X	ash from pile in building	1	1						14 day turnaround. QA level II
LSWP1	3/31/94	1045		X	wipe, wall near ash pile	1		1					
LSWP2	3/31/94	1050		X	wipe, wall near eastern incinerator	1		1					FAX results to Mary Jane Ripp
													Ecology & Environment
													FAX (312) 663-1090
					*Each wipe sample was taken								
					from an area 10cm x 10 cm								hard copy 21 day
					with a gauze pad treated								to Mary Jane Ripp
					with hexane.								Ecology & Environment, Inc.
													111 W. Jackson Blvd
													Chicago, IL 60604
													(312) 663-9415
													Shipment is complete

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	3/31/94 1500	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) — Date / Time

Ship To:
COAST TO COAST ANALYTICAL
7726 MOLLER ROAD
INDIANAPOLIS, IN 46268

ATTN: JODY WALKER

Airbill Number
1254910683

Chain of Custody Seal Numbers
143309, 143308

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